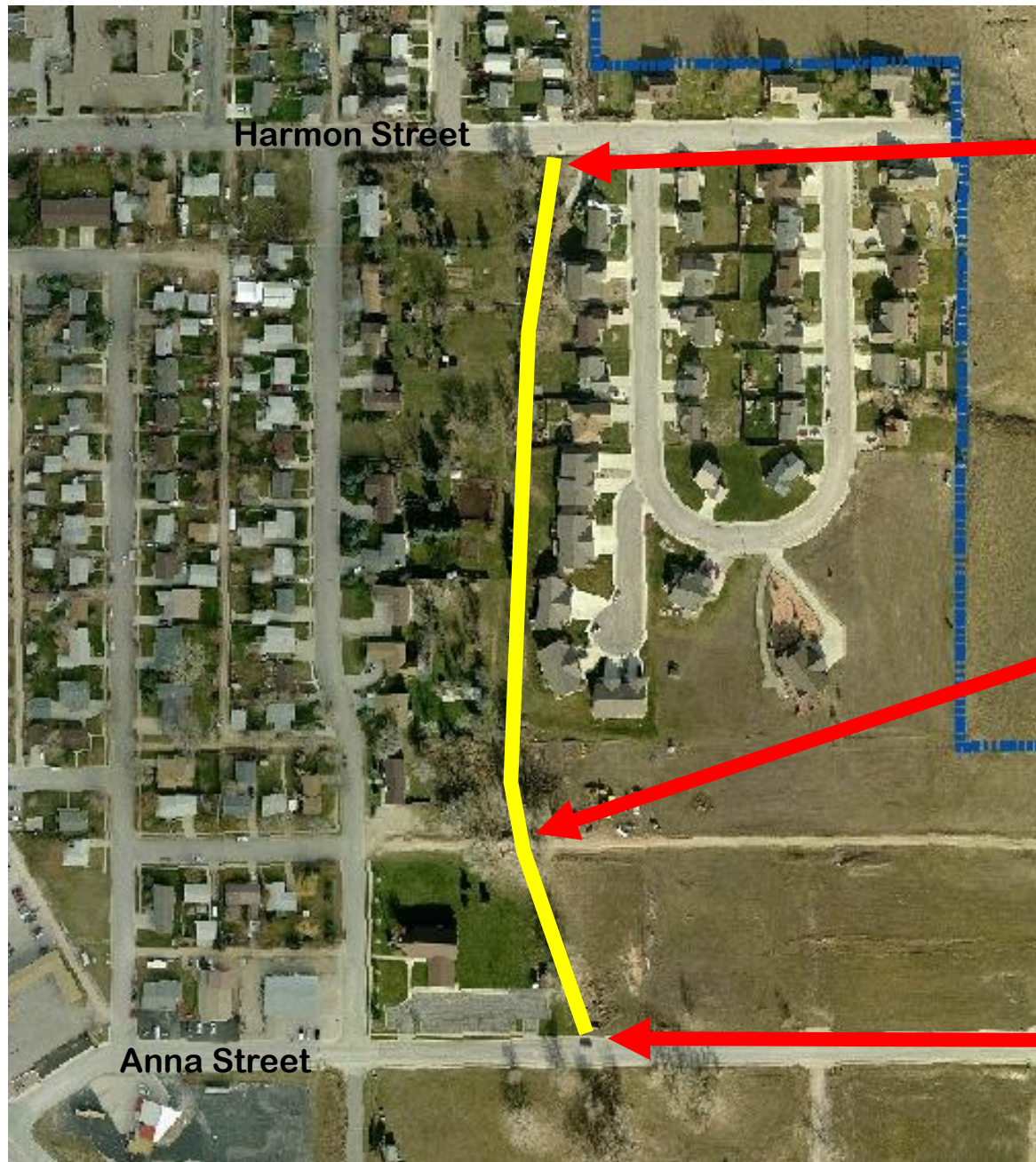


A photograph of a white pickup truck driving through deep floodwaters on a street. The water is murky and splashing around the truck's wheels. In the background, another vehicle is visible, also driving through the flood. The scene is set in a residential area with trees and houses in the distance.

Anna Street Drainage

Prepared By: Public Works Dept.

June 2015







Several residential obstructions

Additional Sources of Storm water





Glover Street Crossing has reached capacity

Storm Water has begun to back up and find path of least resistance





Severe ponding has acured







Storm water is sheeting across adjacent properties





Glover Street Outfall has obstrcutions

**Have the potential to become
Hazardous causing personal or
Property damage or creating a
Blockage down stream**







Storm Water Detention Pond

- ❖ Allow us to store excess storm water runoff onsite, during significant rain or snow events.
- ❖ Slowly meter the outflows downstream.
- ❖ Help reduce localized flooding and Property Damage.
- ❖ Very Minimal or no improvements would be needed downstream.
- ❖ Storm water would enter the Deadman Channel at a controlled rate.



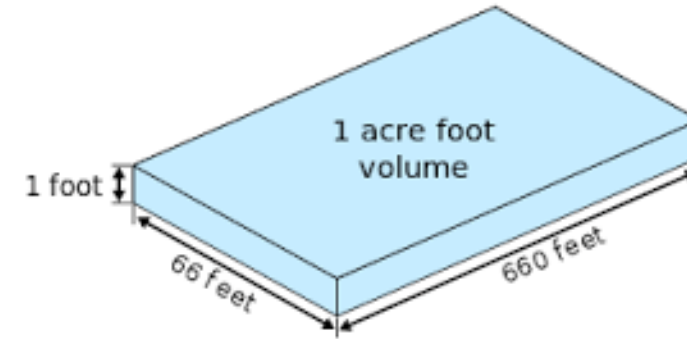


Glover Street Crossing

- ❖ Improvements to Glover Street crossing are necessary no matter Which option we choose to proceed with.
- ❖ All Options presented call out for the installation of (3) Three 60” CMP Pipe with headwall structures. These would be identical to those that PW Crews installed at Sly Street.
- ❖ Allows for un-obstructed flows down the Anna Street Drainage and into Deadman Channel.
- ❖ Will substantially increase flow rates and velocities.
- ❖ Could create potential pitfall if down stream structure (Harmon Street) box culvert were to plug.



**Storm Water Flow Calculations resulted that
We would need 100 Acre Feet of Storage**



**Even at 10' depth we would need a pond size of
approximately 660' X 6,600'**

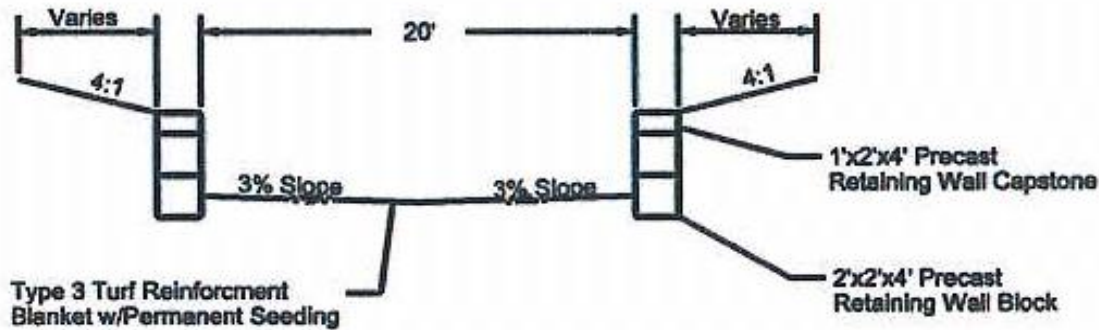
20' Depth would require 330' X 3,300'

**Land Acquisition and size of the detention pond
Would be limiting factors.**



Option 1A

Option 1A

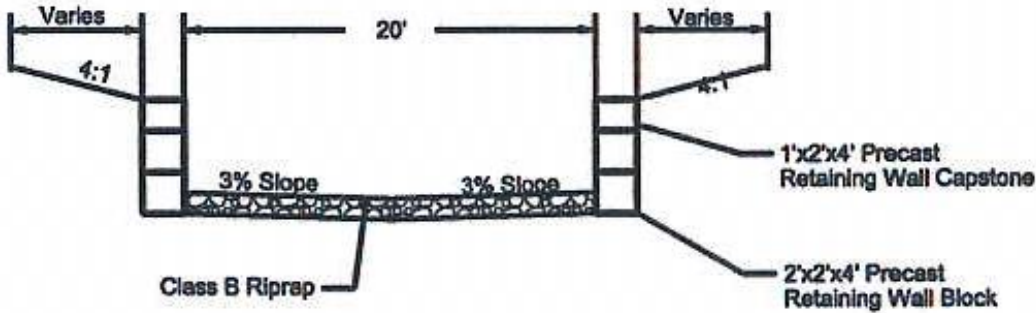


Mobilizatin	1	LS	\$ 15,000.00	\$ 15,000.00
Clearing	1	LS	\$ 6,500.00	\$ 6,500.00
Unclassified Excavation	5,400	CY	\$ 10.00	\$ 54,000.00
1" Minus Clean Rock	366	Ton	\$ 42.00	\$ 15,372.00
Placing Topsoil	980	CY	\$ 4.00	\$ 3,920.00
Seeding & Mulching	1.5	Acre	\$ 2,500.00	\$ 3,750.00
Erosion & Sediment Control	1	LS	\$ 3,500.00	\$ 3,500.00
Type 3 Turf Reinforcement Mat	2,615	SqYd	\$ 6.00	\$ 15,690.00
2'x2'x4' PreCast Retaining Wall Block	680	Each	\$ 106.00	\$ 72,080.00
1'x2'x6' Precast Retaining Wall Block	104	Each	\$ 66.00	\$ 6,864.00
Cast In Place Cap for Wall	87	CY	\$ 110.00	\$ 9,570.00
Triple 60" CMP Pipe w/Headwalls Structure	246	Ft	\$ 220.00	\$ 54,120.00
Flowable Fill	38	CY	\$ 150.00	\$ 5,700.00
Misc. Items	1	LS	\$ 20,000.00	\$ 20,000.00
Engineering - Construction	1	LS	\$ 15,000.00	\$ 15,000.00

Total \$ 301,066.00



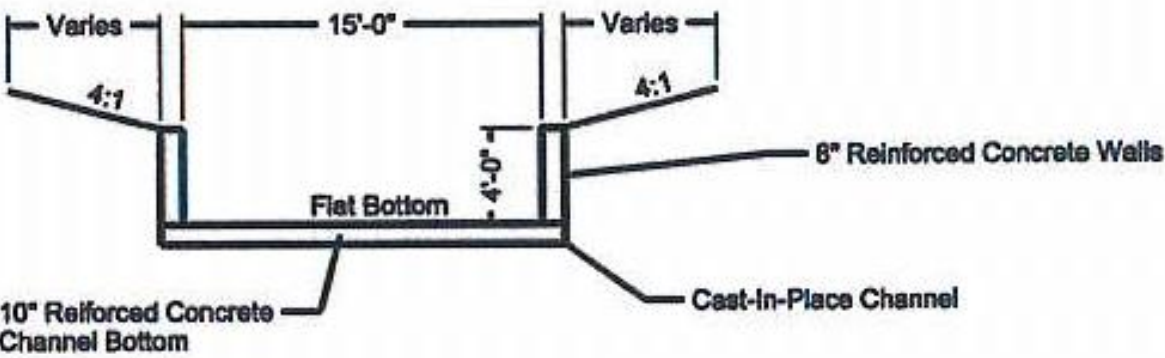
Option 1B



Option 1B

Mobilizatin	1	LS	\$	15,000.00	\$	15,000.00
Clearing	1	LS	\$	6,500.00	\$	6,500.00
Unclassified Excavation	6,280	CY	\$	10.00	\$	62,800.00
1" Minus Clean Rock	366	Ton	\$	42.00	\$	15,372.00
Placing Topsoil	980	CY	\$	4.00	\$	3,920.00
Seeding & Mulching	1.0	Acre	\$	2,500.00	\$	2,500.00
Erosion & Sediment Control	1	LS	\$	3,500.00	\$	3,500.00
Class B Riprap	1,220	Ton	\$	55.00	\$	67,100.00
2'x2'x4' PreCast Retaining Wall Block	680	Each	\$	106.00	\$	72,080.00
1'x2'x6' Precast Retaining Wall Block	104	Each	\$	66.00	\$	6,864.00
Cast In Place Cap for Wall	87	CY	\$	110.00	\$	9,570.00
Triple 60" CMP Pipe w/Headwalls Structure	246	Ft	\$	220.00	\$	54,120.00
Flowable Fill	38	CY	\$	150.00	\$	5,700.00
Misc. Items	1	LS	\$	20,000.00	\$	20,000.00
Engineering - Construction	1	LS	\$	15,000.00	\$	15,000.00
			Total		\$	360,026.00

Option 2

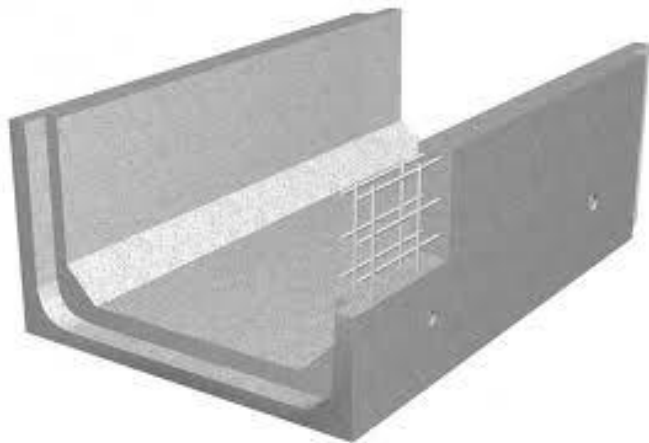
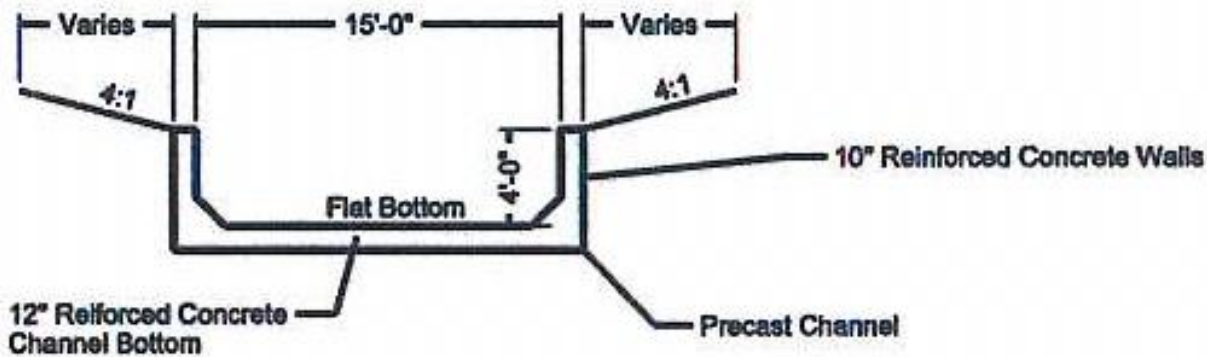


Option 2

Mobilization	1	LS	\$ 15,000.00	\$ 15,000.00
Clearing	1	LS	\$ 6,500.00	\$ 6,500.00
Unclassified Excavation	4,530	CY	\$ 10.00	\$ 45,300.00
Placing Topsoil	980	CY	\$ 4.00	\$ 3,920.00
Seeding & Mulching	1.0	Acre	\$ 2,500.00	\$ 2,500.00
Erosion & Sediment Control	1	LS	\$ 3,500.00	\$ 3,500.00
Reinforced Concrete Channel	880	CY	\$ 350.00	\$ 308,000.00
Base Course	740	Ton	\$ 24.00	\$ 17,760.00
Triple 60" CMP Pipe w/Headwalls Structure	246	Ft	\$ 220.00	\$ 54,120.00
Flowable Fill	38	CY	\$ 150.00	\$ 5,700.00
Misc. Items	1	LS	\$ 20,000.00	\$ 20,000.00
Engineering - Construction	1	LS	\$ 15,000.00	\$ 15,000.00
Total			\$	497,300.00



Option 3

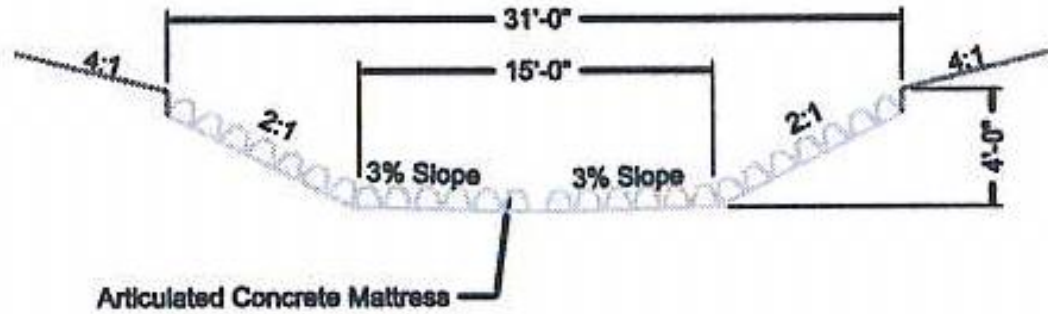


Anna Street Drainage Channel
May 20, 2015
Opinion of Probable Cost

Option 3

Mobilizatin	1	LS	\$	15,000.00	\$	15,000.00
Clearing	1	LS	\$	6,500.00	\$	6,500.00
Unclassified Excavation	4,530	CY	\$	10.00	\$	45,300.00
Placing Topsoil	980	CY	\$	4.00	\$	3,920.00
Seeding & Mulching	1.0	Acre	\$	2,500.00	\$	2,500.00
Erosion & Sediment Control	1	LS	\$	3,500.00	\$	3,500.00
PreCast 4x15 Concrete Channel	1,176	Ft	\$	1,575.00	\$	1,852,200.00
Base Course	740	Ton	\$	24.00	\$	17,760.00
Triple 60" CMP Pipe w/Headwalls Structure	246	Ft	\$	220.00	\$	54,120.00
Flowable Fill	38	CY	\$	150.00	\$	5,700.00
Misc. Items	1	LS	\$	20,000.00	\$	20,000.00
Engineering - Construction	1	LS	\$	15,000.00	\$	15,000.00
Total				\$	2,041,500.00	

Option 4



Anna Street Drainage Channel

May 20, 2015

Opinion of Probable Cost

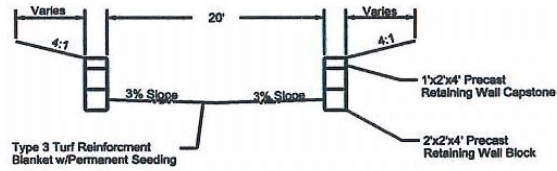
Option 4

Mobilization	1	LS	\$	15,000.00	\$	15,000.00
Clearing	1	LS	\$	6,500.00	\$	6,500.00
Unclassified Excavation	5,800	CY	\$	10.00	\$	58,000.00
Placing Topsoil	980	CY	\$	4.00	\$	3,920.00
Seeding & Mulching	1.0	Acre	\$	2,500.00	\$	2,500.00
Erosion & Sediment Control	1	LS	\$	3,500.00	\$	3,500.00
Articulated Concrete Mattress	4,182	SqYd	\$	130.00	\$	543,660.00
Base Course	740	Ton	\$	24.00	\$	17,760.00
Triple 60" CMP Pipe w/Headwalls Structure	246	Ft	\$	220.00	\$	54,120.00
Flowable Fill	38	CY	\$	150.00	\$	5,700.00
Misc. Items	1	LS	\$	20,000.00	\$	20,000.00
Engineering - Construction	1	LS	\$	15,000.00	\$	15,000.00
Total				\$	745,660.00	

Which option to proceed with and how to fund??



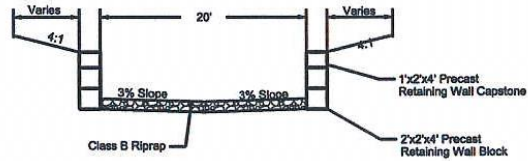
Option 1A



Block Wall & Fabric Lining

\$301,066.00

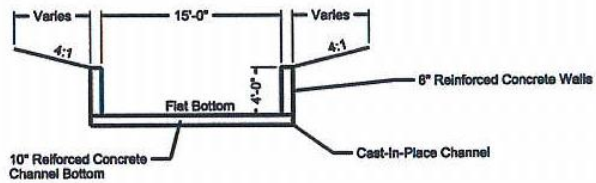
Option 1B



Block Wall & Rip Rap

\$360,026.00

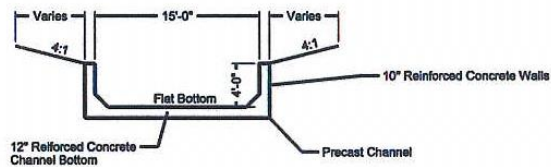
Option 2



Poured Concrete Channel

\$497,300.00

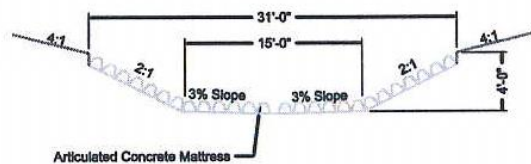
Option 3



Precast Channel Sections

\$2,041,500.00

Option 4



Articulated Concrete Mattress

\$745,660.00

Questions or Comments??

